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AUTHOR Penrod, James I.; Craft, Larry N.
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ABSTRACT

The planning for, design, and implementation of information management systems in colleges and universities is approaching a state of adolescence as a science. Because rules cannot be devised with sufficient scope and depth to cover all institutional and systems contingencies, the necessary activities remain somewhere between magic and art. At least 10 different efforts should be made in the early stages of systems planning which relate to facilities management, a systems committee, the user liaison functions, seminars, data base management, advisory committees, implementation task groups, a procedures committee, user training, and evaluation. Attachments include a systems seminar model for increased participant consciousness in a planned organizational change, a systems seminar end-of-meeting evaluation instrument, a responsibility statement for data base administrators, user module checklist tables, and a university procedures committee responsibility matrix.
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THINKING NEW SYSTEM(S)?

SOME ACTION ITEMS

by

James I. Penrod

Larry N. Craft

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THINKING NEW SYSTEM(S)? SOME ACTION ITEMS

James I. Penrod
Larry N. Craft

Pepperdine University
Malibu, California

The planning for, design and implementation of information management systems in colleges and universities is approaching a state of adolescence as a science. Because we cannot devise "rules" with sufficient scope and depth to cover all institutional and systems contingencies, the necessary activities remain somewhere between magic and art. At least ten "things" can and should be done in the early stages of systems planning. These relate to facilities management, a systems committee, the user liaison functions, seminars, data base management, advisory committees, implementation task groups, a procedures committee, user training, and evaluations.

PART I

PERSPECTIVE: FOCUSING ON THE TARGET

PEPPERDINE UNIVERSITY

Pepperdine University was established in 1937 through the philanthropy of George Pepperdine (1886-1962), founder and developer of the Western Auto Supply Company. The school was primarily an undergraduate college, affiliated with the Churches of Christ and dedicated to promoting liberal arts education with a Christian atmosphere.

The school opened as Pepperdine College on the 35-acre original site in south-central Los Angeles, with 137 students. A grant by the founder provided for the campus, buildings, and an endowment of approximately two million dollars.

An enormous growth period ensued in the late 1960's and early 1970's (see Figures 1 and 2) as Pepperdine rapidly expanded from a single undergraduate institution to a multi-campused operation of five schools and many off-campus locations.

In 1972, the 650-acre Malibu Campus, site of Frank R. Seaver College, opened with 872 students. As of the current school year, 1977-78, Pepperdine Schools of Professional Studies, Business and Management, and Education are administered from the Los Angeles Campus. Pepperdine School of Law, presently located in Anaheim, will be joining Frank R. Seaver College, the traditional 4-year undergraduate college at the Malibu Campus, in September, 1978.

Adding complexity to this phenomenal growth are off-campus teaching locations, weekend mode courses, multi-disciplinary courses, a one-year

European program and extensive military programs on a world-wide basis.

The challenges which must be met due to this rate of change are most evident in the areas of Student and Financial Records. As the technical needs of the systems change, so is it necessary to restructure and redefine the procedures and functions that the staff have been working with in the past, a task at least as important as the technical modifications.

UNIVERSITY INFORMATION SERVICES

The coordination of such extensive administrative changes involving computer systems became the responsibility of University Information Services (UIS). UIS was originated for the purpose of developing a Management Information System rather than a data processing operation in order that overall administrative/academic needs could be met in a unified way, and future planning and information reporting could be correlated with the current data processing done in support of the administrative systems. In effect, UIS has become a change agent for the University in the sophistication and refining of Pepperdine's systems requirements.

UIS has two primary objectives: (1) to provide management information to all divisions and administrative levels of the University, including information pertaining to decision-making needs and information related to operation of administrative systems; and (2) to provide technical expertise for the design, implementation, operation, and ongoing maintenance of systems software and hardware, both administrative and academic.

Organizationally, UIS reports directly to the Executive Vice President, the chief operations officer for Pepperdine University (see Attachment A). The organization itself is headed by the Executive Director who has direct

oversight of the Administrative Staff, Institutional Research, and Computer Services units (see Attachment B, page 1).

Several dramatic occurrences within a relatively short time frame have had a large impact on the University. These included: purchase and installation of a major computing device (a Univac 90/60 computer); design and construction of a facility to house the computer and staff (a two-story, 7,000 square foot building); conversion of some programs and all data from the external Service Bureaus which had been used for Administrative Services prior to the Univac 90/60; performance of ongoing routine reporting functions; and hiring, integrating, and training personnel to support an internal computing facility.

Total redesign and new programming effort for all administrative software has been started. The Integrated Student Information System (ISIS) has been completed. Other primary administrative software such as the Integrated Business Information System (IBIS) are in the initial design stage. Building a research data base for trend analysis from past and current information is also in progress.

The change process is dramatically affected by the organizational management style. In fact, the change strategy may be dictated by it. The approach to management in UIS is derived from a revisionist theory social systems model: specifically, UIS's Executive Director's modified version of the Getzels-Guba "Nomothethic-Idiographic" model.[1]

This model stresses: (1) the group as the basic organizational unit; (2) a well-defined formal structure supplemented by informal communication channels; (3) authority derived from knowledge, skill and achievement whenever possible; (4) control and feedback closely related to group pro-

cesses; (5) decision-making conducted at the most appropriate level; (6) goal-setting with as much group participation as possible; (7) communication vertically and horizontally occurring without filtering; (8) motivation directly related to the individual's role definition; (9) a project approach to problem-solving; and (10) an atmosphere receptive to internal change.

The strategy being implemented by UIS is a normative-re-educative model very similar to the problem-solving construct described by Novotney[2] with the introduction of a semi-permanent outside/inside change agent.

PART 2

FACILITY MANAGEMENT: INTEGRATION WITH EXISTING ORGANIZATIONS

SYSTEMS & COMPUTER TECHNOLOGY CORPORATION

The outside change agent is Systems & Computer Technology Corporation (SCT), a facilities management/educational software firm with extensive experience spanning ten years in more than one hundred colleges and universities.

SCT has a five-year contract with Pepperdine to provide management and technical expertise in the Computer Services areas of Computer Operations, Administrative Systems and Academic Computing. Managers of these areas report directly to the Director of Computer Services. The Assistant Director immediately supervises Administrative Systems which is comprised of Student Records, Financial Records and User Liaison. All managers of these units are SCT employees. Successive positions are held by both Pepperdine and SCT personnel (see Attachment B, pages 2-4).

SCT personnel work to identify University needs, to provide certain

technical skills to the University, to train University staff, to provide support for training, to arrange access to other training resources, to coordinate administration and training as part of the system's problem-solving procedures, to act as a solution giver, to act as a process helper, and to act as a catalyst. The roles vary depending upon direction from the University.[3]

All SCT activities are under the direct supervision of the UIS Executive Director who coordinates their efforts with University personnel to produce concise problem statements, to analyze problems, to form objectives to solve problems, to conduct an inventory of the necessary resources to solve identified problems, to develop plans which will allow objectives to be reached, to help in the evaluation process during implementation and in the determination of how well objectives were met, and to bring about any alterations dictated by the evaluative feedback.[4]

INTEGRATION OF SCT INTO UIS

The functions of the inside agent(s) (the UIS Executive Director and his staff) are critical in seeing that changes brought about by the "outside" impetus become a stable part of the ongoing operation and that they have a broad base of acceptance. Thus, the first task was to integrate SCT management and new Pepperdine employees into the UIS organization. Several actions were specified to take place in this endeavor: (1) the UIS Executive Director interviewed and approved all SCT managers prior to their assignment to Pepperdine. (2) Each Pepperdine employee transferred to UIS was given an individual and a group orientation to the goals and expectations of UIS. (3) The SCT managers conducted individual and group orientations with the unit they supervised. (4) Detailed job descriptions and specific

individual assignments were distributed and discussed with all new employees and with UIS employees who reported to SCT management. (5) An all-day complete staff UIS orientation session was conducted. (6) A weekly meeting in which all UIS managers report plans and project progress to the Executive Director was established. (7) An ombudsperson position reporting to the Executive Director was established. (8) An employee's orientation manual describing UIS goals, policy and procedures, organizational structure, the SCT role, and the UIS/University relationship was prepared and distributed to each UIS employee. (9) Meetings were scheduled and conducted with deans and representatives from each school in the University to define and discuss the new UIS role and the SCT involvement in it. (10) Similar meetings were held with all administrative units. (11) Several committees (which will be discussed in detail later) were appointed in an attempt to ensure university-wide input and to facilitate information dissemination. (12) The policy of weekly meetings to discuss schedules, problems or modifications with major systems users was continued. Finally, (13) a monthly meeting where the Director of Computer Services presents a formal progress report to the Systems Committee (the policy-making body for UIS) was established.

PART 3

A SYSTEMS COMMITTEE: COMPOSITION AND CHARGE

Ensuring that UIS meets the objectives for which the department was created, the President of the University has established the Pepperdine University Systems Committee with the following make-up and charge:

> The Pepperdine University Systems Committee is composed of the Executive Vice President, who serves as Chairperson, the Senior Vice President, the Vice

President of Academic Affairs, the Vice President of Administrative Affairs, the Vice President of Financial Affairs, the Vice President of University Affairs, the Vice President and Dean of the School of Business and Management, the Associate Vice President of Finance, the Controller, the Dean of Student Records, the Executive Director of University Information Services, and the Director of Computer Services (ex-officio). The function of the Committee is to serve as the "policy board" for computer services.

The activities include the establishment and review of all policies related to University computing, the establishment and broad review of University priorities and service levels relative to computing, regular monitoring of the ongoing project to assure effective implementation of the objectives as set forth in the contract, the working plan, and any other systems-related plans of the University, and yearly review of the Computer Center budget consistent with the service levels established."[6]

The committee has a standing monthly meeting but currently meets on an as-needed basis, almost weekly.

PART 4

USER LIAISON: THE COMMUNITY CONTACT REPRESENTATIVE

User Liaison Specialists within UIS are vitally important, having as their prime function the task of facilitating communication between user departments and the computer production and design staff. Each specialist is assigned responsibility for an administrative area and spends most of his/her time in the specific area gathering or giving information and trouble shooting apparent problems.

The UL Specialists who operate within Computer Services have been heavily involved in the design and implementation stages of ISIS. Specifically, UL Specialists assist in procedure writing, forms design, data input screen design and testing and development of data file conversion

specifications and associated testing. These functions have been especially important in interfacing with the field engineer for the data entry device and with the data entry supervisor during transition periods. For example, if forms were mailed to students which became obsolete before all were returned, a workable solution would have to be devised to allow input of data from both old and new versions of the form; this impacts system modifications, procedures, and input screen design.

At the same time UL Specialists interpret to the users how the system can best serve them by identifying potential problem areas of design or procedures, such as registration and billing methods for classes with irregular beginning and ending dates. They assist in developing the user's objectives, the design of new formats and the enumeration and clarification of required testing.

As a highly user-oriented group, they have had a primary role in providing training in new data collection and recording procedures to selected personnel. To do this, UL Specialists must know and understand the mechanics of the old systems in addition to the design of the new system. Further, they must know the strengths and weaknesses of their users--and help reluctant users to realize benefits of coordination and systemization. The day-to-day and person-to-person contact given by User Liaison throughout the University community cannot be overemphasized in the process of developing and maintaining a smooth and effective system.

PART 5

SYSTEMS SEMINARS: THE CORE PROBLEM ATTITUDES

Because of the absolute necessity for user involvement in the implementation phase of the new system and because of the substantial un-

rest and resistance to such a change causing effort, there was a need for some method of bringing about unified feeling of cooperation.

Argyris has stated that "most individuals are 'systematically blind' to their behavior and are therefore 'culturally programmed' to behave in ways that reduce the probability of change."[7]

The device chosen to overcome this "systematic blindness" was a consciousness-raising model developed by Samuel A. Culbert as described in his book, The Organization Trap and How to Get Out of It.[8]

The consciousness-raising model focuses on two components, the personal and the system. The personal component strives to develop sufficient understanding of who we are without our adaptations to the system and to recognize which parts of the system fail to fit our needs. The system component involves our seeing what the system is and how it works--as contrasted with how we've been conditioned to see it--and our thinking about the well-being of others who are also part of the system.[9] In implementing the model, it was important to observe the following points: (see Attachment C)

1. The outputs of each stage provide inputs for the next; thus, the stages must be carried out in sequence.

2. The groups should be carefully selected so that there is a cross section of individuals at the same operational level but representing different departments within Pepperdine.

3. The group should be small enough for comfortable sharing but large enough to construct an accurate perspective of the system (12-15).

4. The group should be committed to attend all three four-hour sessions which meet weekly for three weeks.

5. Each session is to be conducted by a Facilitator who sets an atmosphere of open communication. An individual from UIS, who is a systems specialist, should also be a member of the group for the three weeks. His/her role is to supply answers should any pertinent systems-related questions of a technical nature need clarification.

6. Each seminar should be evaluated for each session both by the attendees (see Attachment D) and by the Facilitator (see Attachment E). These evaluations are then tabulated and analyzed.

Ideas and alternatives for changes to the system--be it administrative or computer-based--were drafted by each seminar group in the form of Action Items which were directed to University officials. General areas of concern have been communication, quality of management, fringe benefits, university-planning, management philosophy, software design, and data processing operations.

Examples of the responses to such recommendations were: a trimesterly meeting with top university administrators and the staffs of each campus in a report/question/answer format; increased benefits to personnel; better management direction; improved coordination and communication between departments; additional training sessions; clarification of roles within the institution; an orientation manual to UIS for non-UIS personnel; wide distribution of the University organizational chart; etc.

PART 6

THE DATA BASE ADMINISTRATOR CONCEPT: DEFINITION AND SCOPE

The Data Base Administrator (DBA/DBM-Manager) and various views and roles of the position were described in an article[10] in the May, 1977 issue of DATAMATION, entitled "The Many Faces of the DBA." The consistent theme of the article is there's no consistency in the position, either from the standpoint of qualifications, of salary, of place in the hierarchy, or of employer expectations. That's consistent with several other positions we could name.

If there's a single knot that ties the individuals in the data users community to the information they require for effective operations, it's

probably the DBA. The DBA is to corporate data and information what the Director of Personnel is to the employer/employee relationship in an organization. He or she must have an understanding of the organization's goals, of the information needs associated with each of the sometimes diverse units comprising the organization, of the level of sophistication the users will bring to an EDP-managed environment, and must have a sufficient depth of knowledge of the limitations and capabilities of the specific data processing resources provided by the institution to work with systems programmers in development of a realistic systems design in the context of these parameters. The analogy with a Director of Personnel rests on the assumption that the Director must have a similar knowledge of the personnel needs in an organization, be able to systematically quantify and keep records accordingly, and know where, how, and what time frames are necessary to meet these needs.

As we perceive it, the human characteristics one looks for in filling a DBA position include not only an intimate general knowledge of institutions of higher education from a broad philosophical to a nuts-and-bolts perspective, but also these:

1. Administrative--We associate these with common sense planning which includes future growth, policy needs, and resources, planning for an organization with adequate (not surplus, not deficit) human, fiscal, and physical resources;

2. Technical--A grasp of the state-of-the-art picture in both the changing technological environment and in terms of where colleges and universities might be five years from now. This means changes precipitated by state and federal government requirements, changing curriculum and student populations, changing emphasis on data as an institutional resource, etc.;

3. Managerial--Speaks to one's ability to assess accurately what one has to work with and optimizing the utilization of those resources to meet today's needs. Good procedures and training programs accompany a good manager; and

4. Attitudinal--We don't suppose there are more than a dozen DBA's in colleges and universities across the United States with as much as ten years experience in their position. How does the DBA view himself/herself and how are they viewed by their employer? In the absence of a clearly defined and mutually acceptable role in the profession, how many quality DBAs will we have ten years from now? Business more and more views Data Base Administration as a profession, but, given the high-powered language we use to define a professional, we doubt that more than 5-10 percent of the 3,000 plus colleges and universities in the United States have a professional DBA. You in this room will have a significant impact on answers related to these questions between now and, say, 1980, and our attitudes and self-image will reflect your answers.

We have a handout (Attachment F) outlining the generalized job description employed by Pepperdine University for its two DBAs. One DBA for the Integrated Student Information System, and one for the Integrated Business Information System. If these two DBAs do a workmanlike job in data base development, likely a single DBA, working with two managers, (at a considerable lower level) is all that will be required to get our job done on a maintenance basis.

While most of what we've said about the DBA has been gained from direct experience over the past 15-18 months at Pepperdine University, some of it was learned by us too late to put into optimal practice.

PART 7

ADVISORY COMMITTEES: THE INPUT FRAMEWORK

Under the leadership of the DBA and with input from all chief administrative officers of the University, total user office representation was sought at the initiation of data base planning and design. Some 18 different offices have representatives on our Student Systems Advisory Committee, and approximately the same number sit on the Business Systems Advisory Committee. We consider the benefits derived from the Committees

of inestimable value to the success of our systems development for the following reasons:

1. They established a spirit of "community" effort and input leading to a sense of "ourness" about the system which was developed;

2. Systems oversights were caught prior to being formally incorporated in the design;

3. It was easy to identify and develop "worst case" examples in the design and testing of systems flexibility;

4. Since our programs are systems tables monitored, adequate field sizes were established in the tables on the first pass; and

5. There has been almost no negative kick-back in the form of "our office didn't know/wasn't informed in time to fully assess our needs."

A couple of additional insights accompanied this participatory development plan. First, things went a hundred times better when we (the DBAs) came to the Committee with a specific proposal for each segment of the system. It is much more efficient to change a proposal than to try to develop one in a committee environment. We tried to have each proposal and a meeting agenda in the hands of the Student Systems Committee members at least ten days prior to meetings. In this manner, each member could review with and solicit input from those (s)he represented. Also, each meeting was followed by minutes, kept and distributed by the chairperson. Meetings were held every three-to-six weeks during the system design. A second important advantage was gained when it was time to start user training programs, which is covered in more detail later. Having individuals in the training sessions who already had a good overview of the system we were installing (from having had Advisory Committee experience) permitted a much more effective user training series than we

could otherwise have expected. Thirdly, we introduced a system that already had a fairly broad base of support on the day of start-up.

In summary, the Advisory Committees provide valuable early input for systems design and review and, just as importantly, provide effective channels for communication in an area where the importance of communication is indispensible and too often overlooked.

PART 8

IMPLEMENTATION TASK GROUPS: A MIDDLE MANAGEMENT ROLE

Several weeks following the wrap-up of our data element dictionary definitions, systems tables identification, and program specifications, it became obvious there was no orchestrated effort to get user-initiated tasks off the ground. Everybody seemed to be working hard but we did not appear to be making any systematic progress towards day one of implementation. The following events and descriptions apply only to the student system segment of our systems development, although it likely will be the case for the business system (if we haven't made it clear, these systems are integrated and accessed using common retrieval software).

It was the circumstances just described that led to the formation of the student system Implementation Task Force. It is composed of the Dean of Student Records, our two registrars, our two assistant registrars for data management, and the Manager of Student Records Systems from University Information Services. For some four months, we met formally once a week following-up and following through with mutually agreed upon tasks and priorities. Beginning with the system start-up and the opening of the Fall Term, these meetings have been reduced to twice monthly. Here, in general terms is how our time was spent.

Initially, the meetings were devoted to formulating strategy: what to do first and how, what followed, etc., on through to the final tasks. Gant charts were constructed for each segment or module of the software. Our first stage development plan called for two transaction editing modules; a Transactional Input Module, for macro screening; and Systems Tables, used wherever possible, as appropriate. The action files and/or programs defined for early use were: Course Catalog, Course Schedule, Drop/Add, (which handles all our registrations), Student Billing, Data Base, Grades Reporting, and Reporting/Retrieval. To these we are presently adding modules to manage our admissions/marketing programs, financial aids, institutional research, and alumni/development. In general, the plan we developed for user activities can be applied to any of these (and perhaps to most other modules.) The activities engaged in consist of five broad categories:

1. Input Form design and Production Activities;
2. Table Definition and Construction Activities;
3. Production-related (through to report retention) Activities;
4. File Conversion(s), where applicable; and
5. Testing (which includes procedures and retrieval request development).

(see Attachment G).

Since the programs mentioned were brought up as a working system, the Implementation Task Force has met twice monthly to refine procedures, to evaluate our own and other users satisfactions, and to begin to identify and prioritize needed refinements. These sessions aren't nearly as frantic or productive as our earlier meetings but, we feel, are just as desirable in

the overall scheme of things.

PART 9

THE PROCEDURES COMMITTEE: PERFORMERS, REVIEWERS, CONSULTANTS AND APPROVERS

When we talk about a system, new or otherwise, we are aware that a large number of developed and accepted procedures are necessary to make the system successful. With this in mind, we identified the functions we anticipated the nucleus of the student system would serve; then, using key personnel from the Student System Advisory Committee, we began itemizing the needed procedures. Simultaneously, the concept and constitution of a Procedures Committee was outlined and a charge written. The listing of needed procedures collected from our users was organized around the associated software elements and put into a sort of matrix (see sample page Attachment H), with individuals and/or offices comprising the columns and the procedure naming the rows. It was decided that each procedure to be written would require four types of input:

1. Performance (writing),
2. Consulting,
3. Reviewing, and
4. Approval.

Counting up the needed procedures identified with the nine student systems modules described earlier (under Part 8, Implementation Task Groups), we found there were more than 100. This effort, started about April 1977, reached a milestone in late summer--a draft of each needed procedure! These drafts have been written with input from designated consultants, reviewed with major users impacted, and approved by the

appropriate individual or office. Using our experiences through the first full cycle of running student systems, the procedures will be (indeed, are now being) refined and polished. Some side benefits from having this Committee with its charge are:

1. A much better educated and more aware user community;

2. A broader sensitivity on the part of users as to the overlapping and interrelated nature of procedures; and

3. User/Committee initiated input as to policy areas not adequately defined/enforced. We feel this latter characteristic is strongly indicative of the type of system user group that will maximally serve our student and University publics and also indicative of a transition from a group of systems-naive individuals to one of educated systems users. We believe this has been a major step in the right direction.

PART 10

TRAINING: APPROACH TO THE REAL PAYOFF

Despite the fact we thought our approach to a user training program was sufficiently well thought out and that oversights would be non-existent, hindsight has somewhat modified that view. Starting with what we actually did, we will come back to a couple of areas we probably could have better managed.

Eight considerations or stances were used as the training model design.

1. Identification of Target Population--Starting with a listing of every administrative and academic office, we went module-by-module through the student system software, recording for each module the offices that would impact or be impacted by the referenced data flow. The chief administrator in each of these offices was asked to name a representative (more than one in some cases) who would be available for the training series.

2. Calendar--We scheduled an every Wednesday morning, 8:30--12:00 noon, training session that spanned about three calendar months. This calendar was circulated well in advance to every identified participant with each session the recipient was

expected to attend highlighted.

3. Sequence--The schedule of presentations began with the first module in the student system program stream, in our case the Transaction Input Module, then went to Systems Tables, to Catalog, Schedule, etc., through Grade Reporting and finally Retrieval.

4. Group Size--Initially we thought we could hold the groups to between 12-18 members--much to our dismay some of the sessions, especially the general introductory sessions had up to 40 individuals.

5. Leader Consistency--We decided early on, and later were glad we had, to use the same individual for the training leadership role (teacher) throughout the training program. This minimized the time loss we would have encountered due to user readjustment to teaching style and also eliminated continuity gaps we might have experienced using several leaders.

6. Resource Availability--Every effort was made to insure the user manuals, input forms, program testing materials, and of course software, were all on hand at the time we introduced each new module. In the case or two when this was not possible, time wasting was prevalent and morale damaged. Fortunately, these were exceptions to the rule and not of much consequence overall, but this would have been crippling had it been routinely the case.

7. Format--We used what might be called a general information session (GIS) to introduce each new student systems module. Every office identified as a user was invited to be represented for these overview presentations. These were followed by two or three detailed information sessions (DIS) wherein user training was provided in a learn-by-doing/using environment. We strongly endorse this approach to the practical aspects of training which, incidentally, also served as early stage testing of the software (since we exercised the live data).

8. Homework--For every hour spent in the formal training environment, at least an equal amount of time was required between sessions. Documentation was read, test data collected, and questions submitted prior to the session in which the materials were formally covered. This required a considerable time commitment from each participant, but we think would have consumed even more time had we attempted to do everything in a group meeting. Not doing homework was considered the worst sin the users committed.

PART 11

EVALUATION AND CONCLUSIONS: HOW ARE WE DOING?

This segment of our presentation gets at the meat of the conference theme: Are expectations equal to reality? In looking for answers to the question, we must confess at once to the subjectivity of the assessment. The finished products do reflect those characteristics initially specified, and that is the beginning and end of an objective assessment. Many would say, and perhaps justifiably so, there is nothing else to examine. This of course assumes the absence of human frailities and personalities as well as a freezing of the clock. At this time the reports produced have been in the hands of users too short a period (three months) to allow for a comprehensive assessment. Data which the users are accustomed to receiving are still provided but now are subject to new manipulative capabilities. There are scattered complaints from the secondary user community regarding added data collection and auditing requirements; such comments as "I spend more hours working for the Admissions Office/Registrar than for my own office" are not uncommon (or unexpected).

If we judge the training efforts according to the success of users in exercising the system, then with one or two exceptions, this area would get high marks--about eight on a scale of ten, objectively.

There are offices and individuals in our University experiencing some disappointment because they unrealistically expected more for less, and in those cases expectations are not equal to the achieved reality. We believe this reality gap is in direct proportion to the level of understanding and sophistication of those offices and individuals, and

do have, relative to college and university systems specifically, and to machine records keeping capabilities generally.

We thought we specified a student information system that would allow us to efficiently and effectively create and manage student records information; at this point, there does not appear to be any reason to think the system will not do just that.

FOOTNOTES

[1] Carver, Fred D. and Sergiovanni, Thomas J., Organizations and Human Behavior: Focus on Schools, McGraw-Hill Book Co., New York, 1969, pp. 167-182.

[2] Tye, Kenneth A. and Novotney, Jerrold M., Schools in Transition: The Practitioner as Change Agent, McGraw-Hill Co., New York, 1975.

[3] Ibid., pp. 106-110.

[4] Ibid., pp. 111-113.

[5] Dillard, Warren; Penrod, James; Gross, Frederick; and Fastman, Gerald, "Agreement between Pepperdine University and Systems and Computer Technology Corporation," pp. 6-7.

[6] _____, "Pepperdine University Systems Committee, " Unpublished Working Plan between Pepperdine and SCT.

[7] Glans, Thomas B., et al, Management Systems, Holt, Rinehart, and Winston, Inc., New York, 1968, p. 3.

[8] Culbert, Samuel A., The Organization Trap and How to Get Out of It, Basic Books, New York, 1974.

[9] Luchsinger, Vincent P. and Dock, V. Thomas, The Systems Approach: A Primer, Kendall-Hunt Publishing Co., Dubque, Iowa, 1976, pp. 4-6.

[10] Yasaki, Edward K., "The Many Faces of DBA," Datamation, May 1977, p. 75.

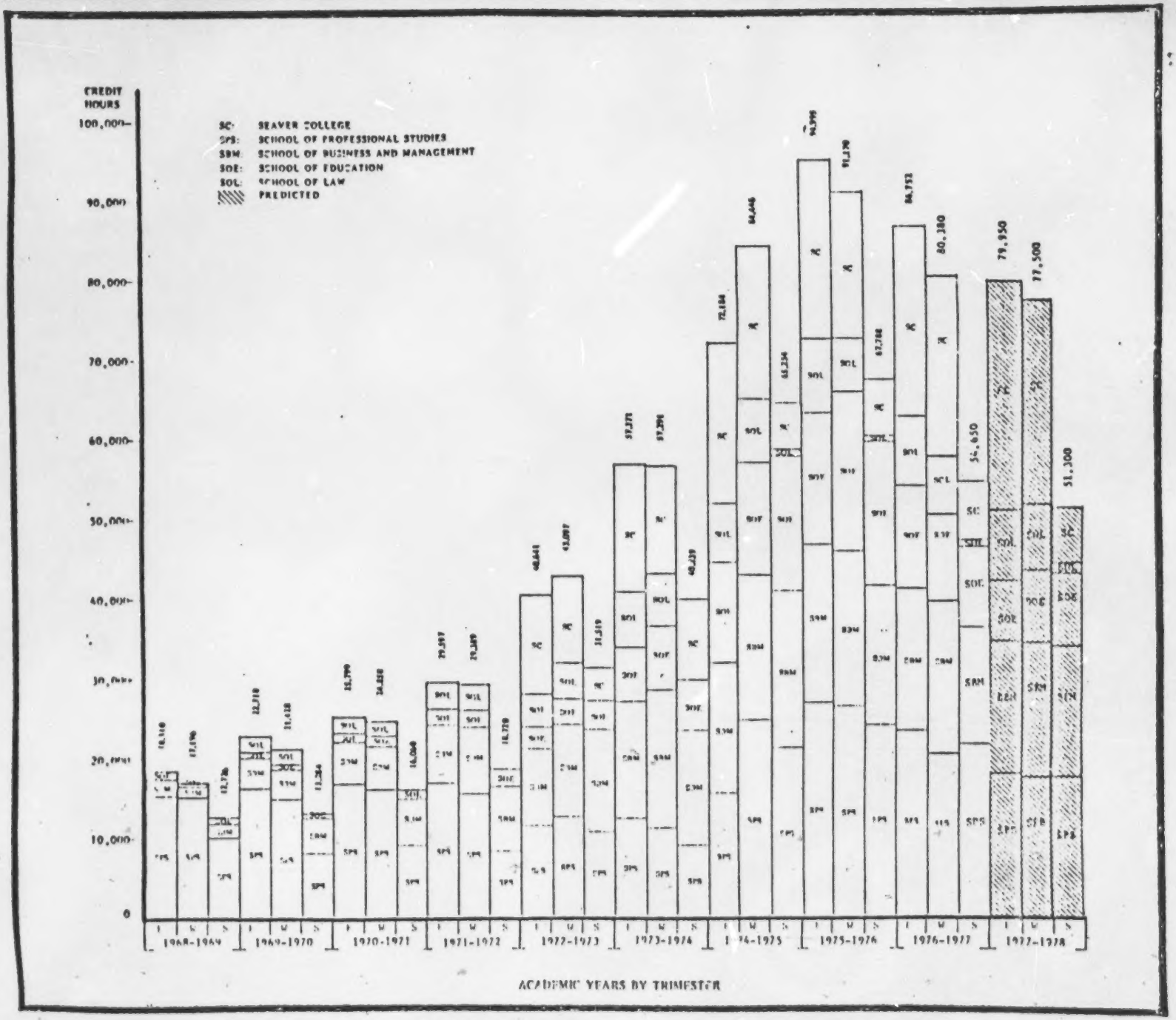


FIGURE 1

CREDIT HOURS BY SCHOOLS FOR THE ACADEMIC YEARS 1968-1969 THROUGH 1977-1978.

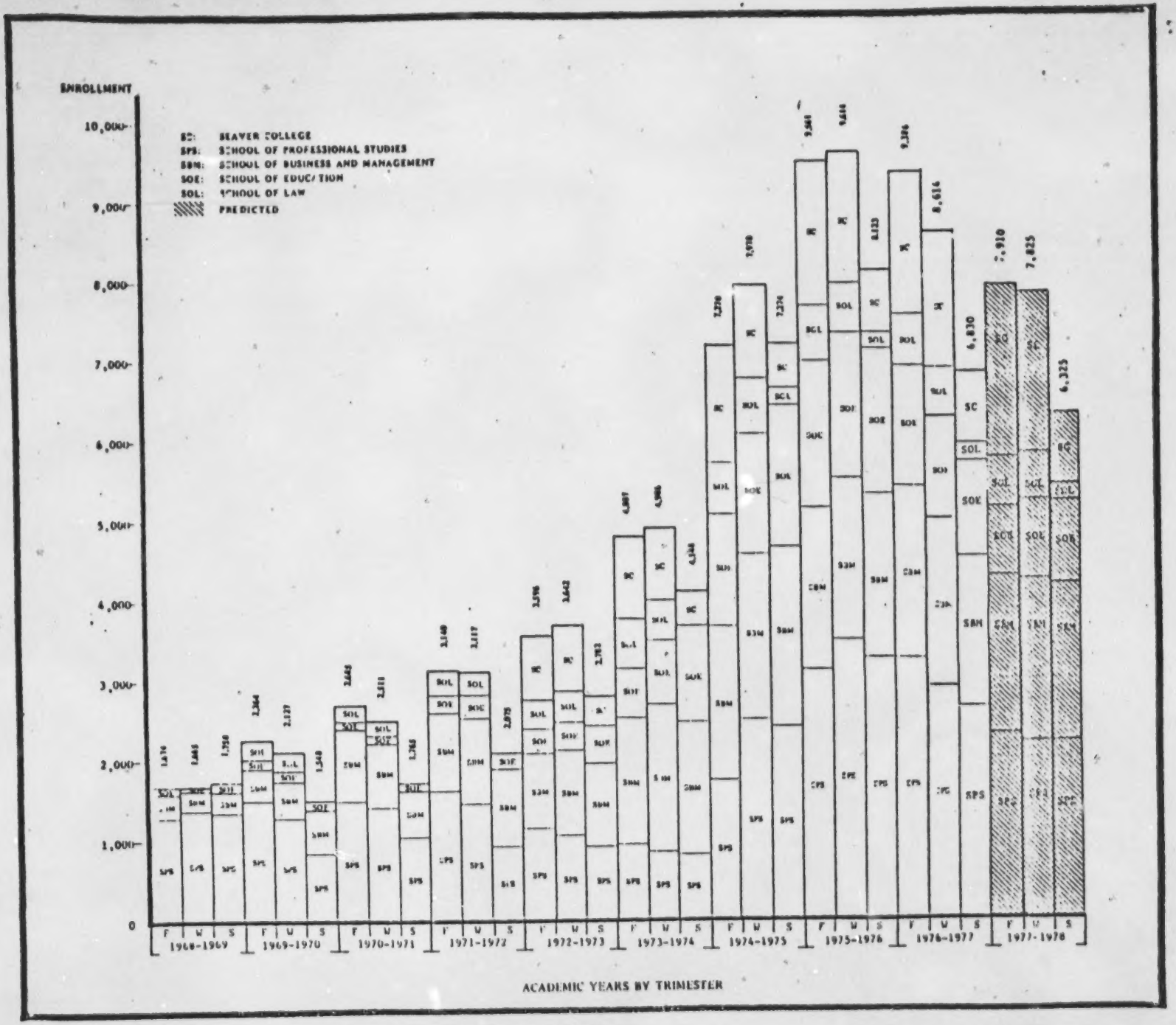
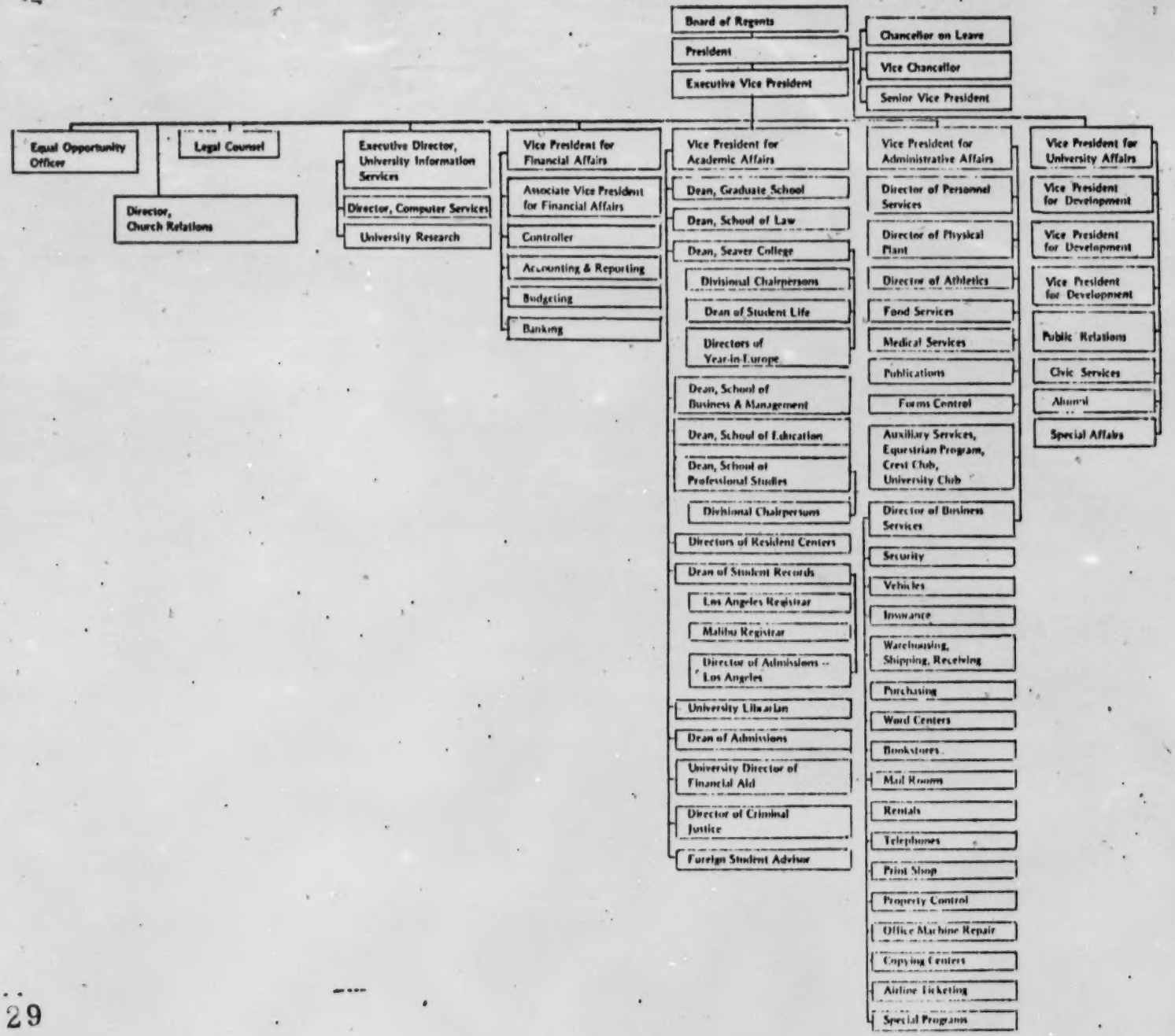
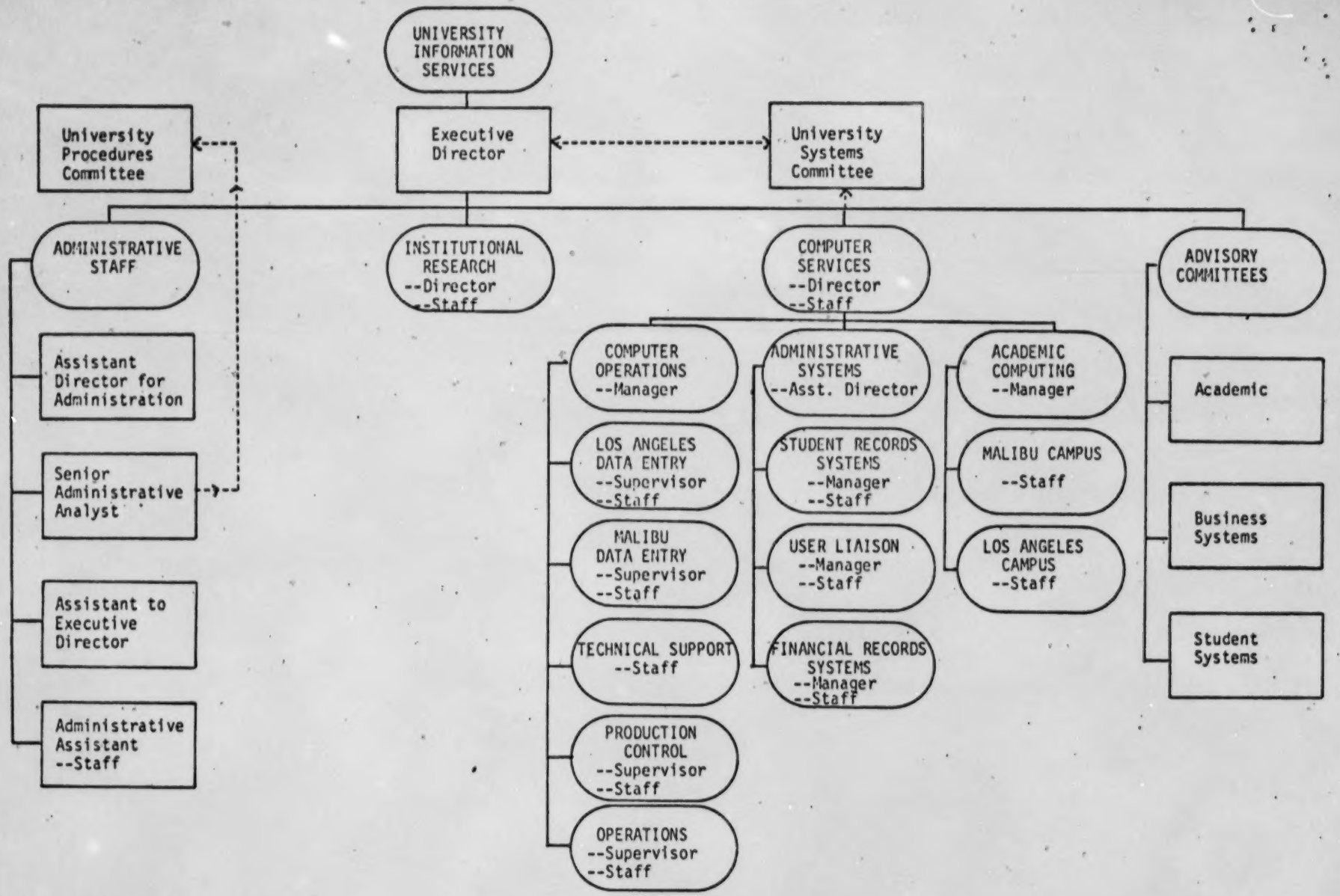


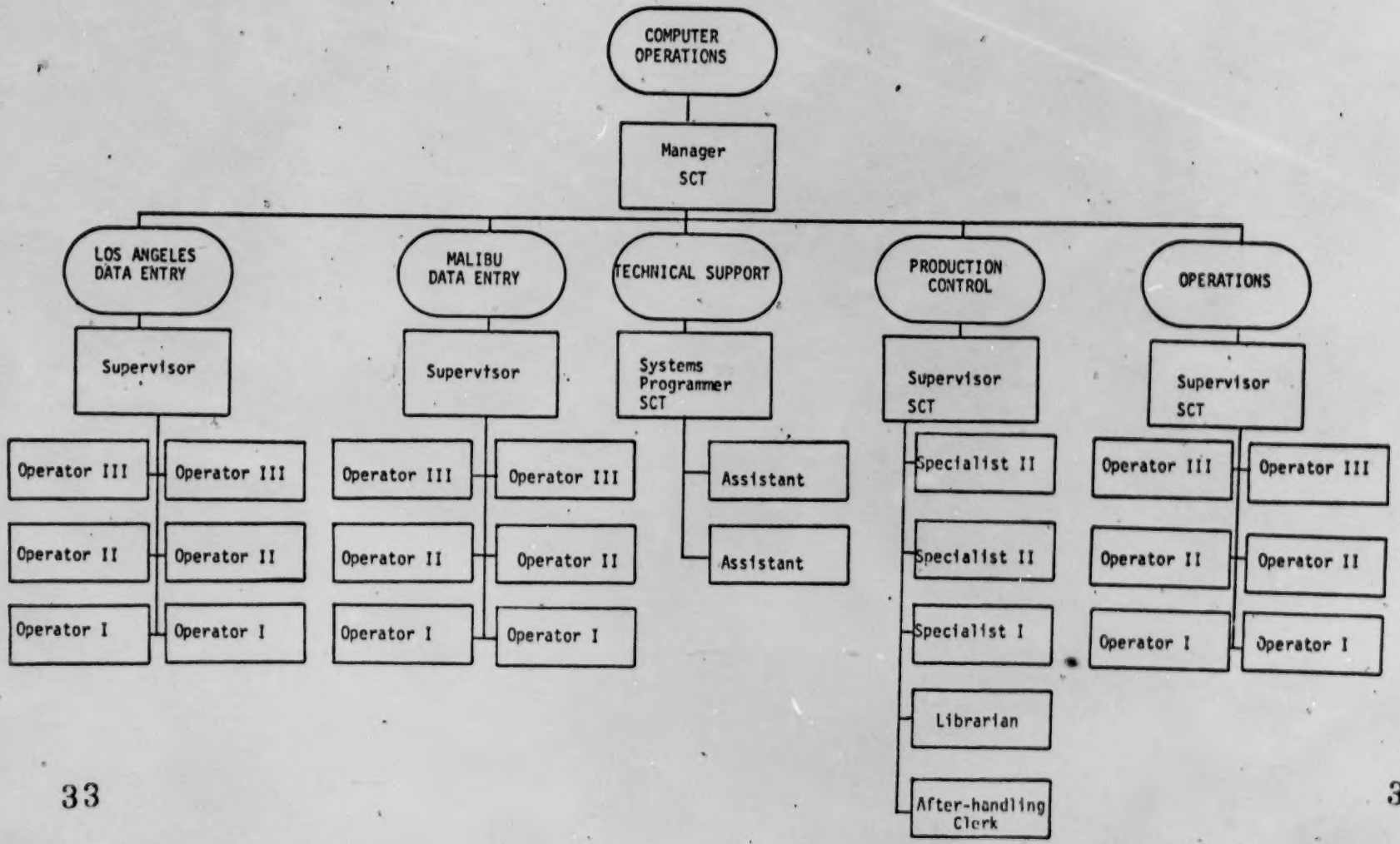
FIGURE 2

HEADCOUNT BY SCHOOLS FOR THE ACADEMIC YEARS 1968-1969 THROUGH 1977-1978.



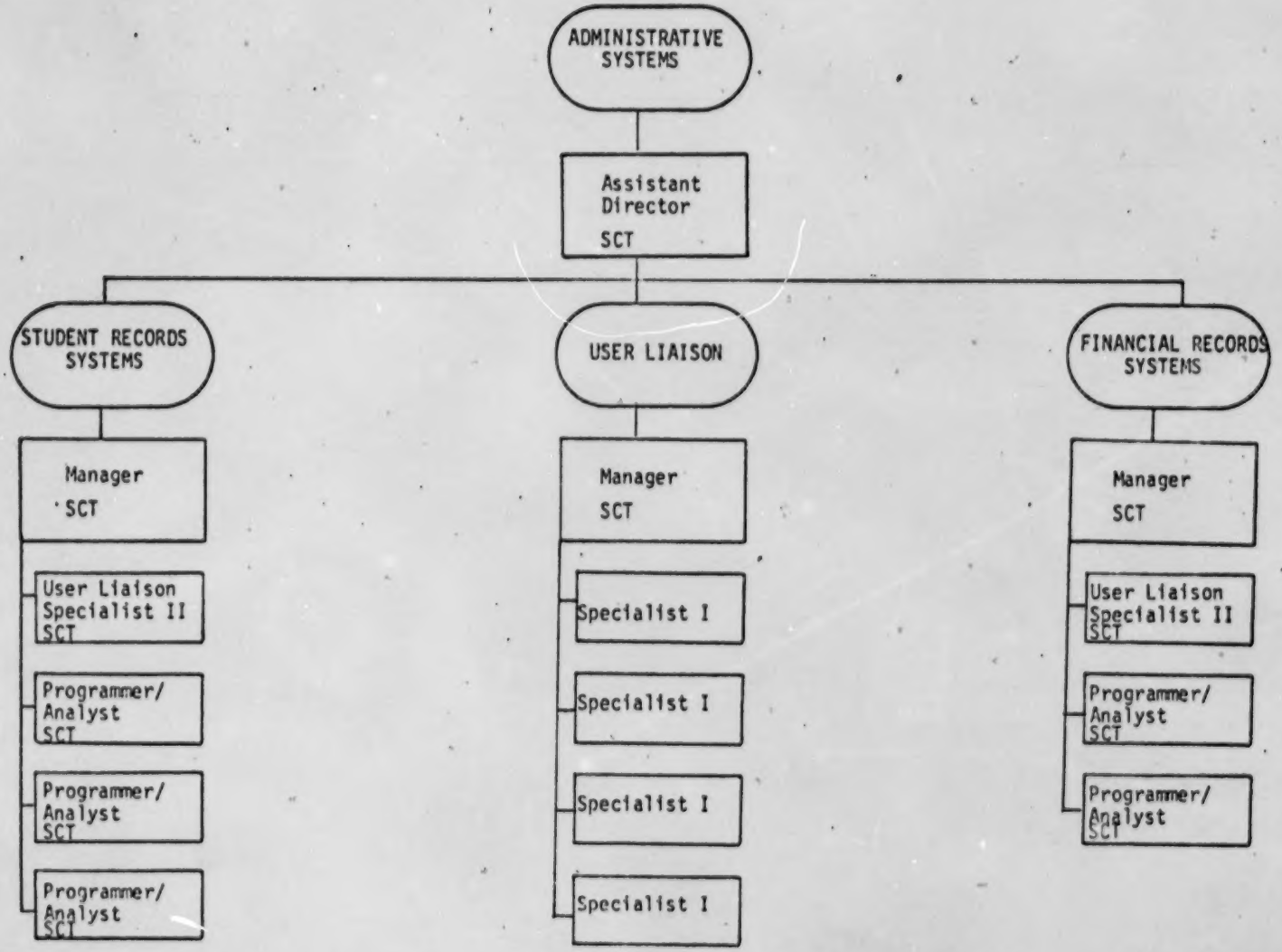
ATTACHMENT A

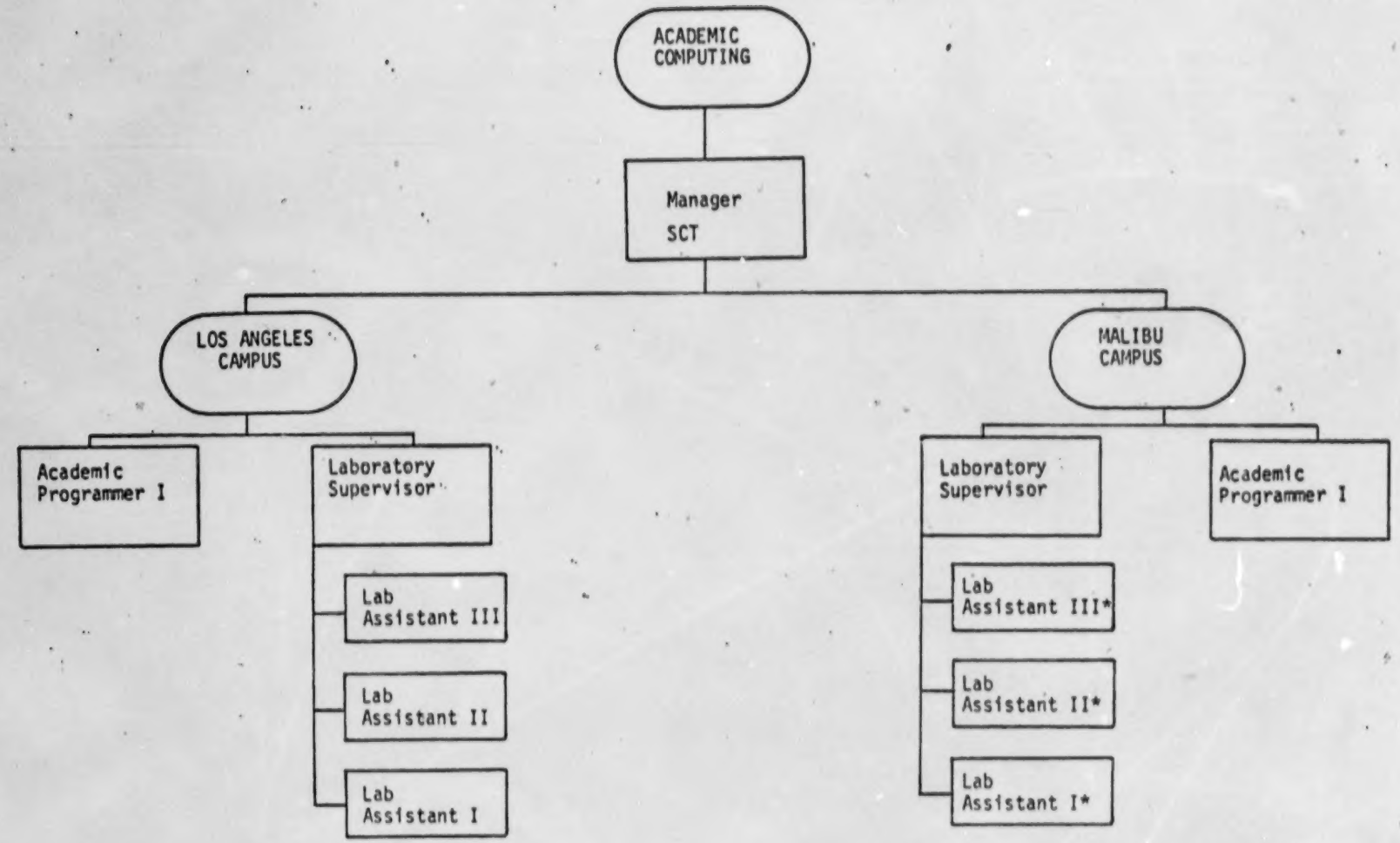

UNIVERSITY INFORMATION SERVICES
University Procedures Committee
Executive Director
University Systems Committee
ADMINISTRATIVE STAFF
Assistant Director for Administration
Senior Administrative Analyst
Assistant to Executive Director
Administrative Assistant --Staff
INSTITUTIONAL RESEARCH --Director --Staff
COMPUTER SERVICES --Director --Staff
COMPUTER OPERATIONS --Manager
LOS ANGELES DATA ENTRY --Supervisor --Staff
MALIBU DATA ENTRY --Supervisor --Staff
TECHNICAL SUPPORT --Staff
PRODUCTION CONTROL --Supervisor --Staff
OPERATIONS --Supervisor --Staff
ADMINISTRATIVE SYSTEMS --Asst. Director
STUDENT RECORDS SYSTEMS --Manager --Staff
USER LIAISON --Manager --Staff
FINANCIAL RECORDS SYSTEMS --Manager --Staff
ACADEMIC COMPUTING --Manager
MALIBU CAMPUS --Staff
LOS ANGELES CAMPUS --Staff
ADVISORY COMMITTEES
Academic
Business Systems
Student Systems



page 2 of 4

ATTACHMENT B


ADMINISTRATIVE SYSTEMS
Assistant Director SCT
STUDENT RECORDS SYSTEMS
USER LIAISON
FINANCIAL RECORDS SYSTEMS
Manager SCT
User Liaison Specialist II SCT
Programmer/ Analyst SCT
Programmer/ Analyst SCT
Programmer/ Analyst SCT
Manager SCT
Specialist I
Specialist I
Specialist I
Specialist I
Manager SCT
User Liaison Specialist II SCT
Programmer/ Analyst SCT
Programmer/ Analyst SCT



*These positions are filled with several part-time students

ATTACHMENT C

SYSTEMS SEMINAR
A MODEL FOR INCREASED PARTICIPANT CONSCIOUSNESS
IN A PLANNED ORGANIZATIONAL CHANGE

STAGE 1: RECOGNIZING THE PROBLEM

The first stage has to do with turning "feelings of incoherence" into "statements of discrepancies." Two questions which typify this are: "In what ways could this feeling be a clue that the system expects something from me that doesn't seem natural or consistent with my self-interests? In what ways could this feeling be a clue that something which seems natural enough to me is considered inappropriate or inadequate by the system?"

STAGE 2: UNDERSTANDING OURSELVES AND THE SYSTEM

Stage two inputs are the lists of discrepancies derived in stage one. We are to use our inductive thought processes and to approach the lists as symptoms rather than the basic ills and then determine what ailment these symptoms might signal--explaining why we have a difference with the system. "If this discrepancy were a symptom of a more basic conflict, what would that conflict be? What combination of human qualities and organization attributes could have produced conflicts such as the ones we have identified?"

STAGE 3: UNDERSTANDING OUR RELATIONSHIP WITH THE SYSTEM

Stage three inputs are the systems insights and the needs and interests of group members. In this stage, we wish to explicate the assumptions on which our interactions with the system are based and examine how they were formed: (1) goals we held for our interactions with the system and the means we use for achieving them, (2) assumptions about the system: its purpose, values, roles in society, and its way of viewing us, (3) the way we and the system influence one another. Each person's assumptions are recorded and also an attempt to identify the origin of the assumption. The group needs to lend support that challenges existing premises, beliefs, and idiosyncratic assumptions.

STAGE 4: FORMULATING ALTERNATIVES

The fourth stage is designed to formulate alternatives that will improve our relationship to the system. This is done by examining the recorded assumptions which link us to the system versus what we have learned and recorded about our needs, interests, and ideals. Two types of alternatives which may be formulated: (1) those which improve the way the system works and (2) those which change our relationship to it. These are recorded and input into the next stage.

STAGE 5: AFFECTING THE LIVES OF OTHERS

The last stage begins with the lists of alternatives having to do with personal changes and systems changes. System changes involve affecting the lives of others; thus there is a need to formulate strategies for the implementation of alternatives. It involves approaching people outside of the group who in all likelihood hold very different views. It is best to go to such individuals with a "Statespersonlike" approach, i.e., explore how the system can be improved rather than advocating specific improvements.

ATTACHMENT D

SYSTEMS SEMINAR
End-of-Meeting Evaluation
Date: _____

1. Were you interested in this meeting?	Very much ___	Quite a bit ___	Some, but not much ___	Very little ___
2. Did you feel that the group was interested in the meeting?	Very much ___	Quite a bit ___	Some, but not much ___	Very little ___
3. Did you learn any new facts or get any new ideas?	Yes, many ___	Quite a few ___	Some, but not very many ___	Very few, if any ___
4. Did you change any of your previous opinions as a result of this meeting?	Yes, many ___	Quite a few ___	Some but, not much ___	Very few, if any ___
5. Were your previous opinions confirmed or strengthened?	Very much ___	Quite a bit ___	Some, but not much ___	Very little ___
6. Did you think the group accomplished anything as a result of this meeting?	It certainly did ___	It probably did ___	I doubt if it did ___	It did not ___
7. Was there enough preparation for the meeting?	More than needed ___	All that was needed ___	Should have been more ___	Should have been much more ___
8. Was there enough opportunity for discussion?	Too much ___	All that was needed ___	Should have been more ___	Should have been much more ___
9. Would the meeting have been better if some parts had been left out?	Certainly ___	Probably ___	Maybe ___	Definitely not ___
10. Did you find the social atmosphere of the meeting congenial and enjoyable?	Excellent ___	Quite good ___	All right ___	Definitely not ___
11. Please give your evaluation (specific comments are appreciated) of the performance of the Facilitator.	Excellent ___	Quite good ___	Fair ___	Poor ___

12. Do you have suggestions (about techniques, materials, etc.) for improving future meetings? (Use other side of page if necessary.)

(you need not sign your name)

ANECDOTAL OBSERVATIONS ON MEETING PRODUCTIVITY

A. Orientation 1. How far did we get? 2. To what extent did we understand what we are trying to do? 3. To what extend did we understand how we are trying to do it? 4. To what extent were we stymied by lack of information?	
B. Motivation and Unity 1. Were all of us equally interested in what we are trying to do? 2. Was interest maintained or did it lag? 3. To what extent did the group feel united by a common purpose? 4. To what extent were we able to subordinate individual interests to the common goal?	
C. Atmosphere Was the general atmosphere of the group: 1. Informal or formal? 2. Permissive or inhibited? 3. Cooperative or competitive? 4. Friendly or hostile?	

Anecdotal Observations on Meeting Productivity (Cont.)

D. Contributions of Members 1. Was participation general or lopsided? 2. Were contributions on the beam or off at a tangent? 3. Did contributions indicate that those who made them were listening carefully to what others in the group had to say? 4. Were contributions factual and problem-centered or were the contributors unable to rise above their preconceived notions and emotionally-held points of view?	
E. Contributions of Special Members of the Group 1. How well did the leader serve the group? 2. The recorder? 3. The resource persons? 4. Those in other special roles?	

ATTACHMENT F

RESPONSIBILITY STATEMENT
for
Data Base Administrators

Under the direct guidance of the appropriate vice president (i.e., the Vice President for Academic Affairs regarding Admissions, Financial Aid, Student Academic Data, and Faculty Data; the Vice President for Financial Affairs regarding Financial Records and Budget Data; the Vice President for Administrative Affairs regarding Personnel, Position Control and Purchasing; and the Vice President for University Affairs regarding Alumni and Development Records) a data base administrator is expected to:

1. Participate directly in all related data file development/ construction beginning with records management philosophy and continuing through definition of necessary data elements and files formats;

2. Oversee and manage the construction of necessary input/ output forms and reports including approval(s) of all such documents and any changes requested in their content or format;

3. Assume responsibility for the integrity of and ultimate approval/ denial of non-routine access to the data files for such purposes as special reports, research activities, etc.;

4. Coordinate with deans, directors, and department chairpersons software design, data element definition, training and program testing activities, and data file changes and maintenance. These responsibilities should further insure information integrity and adequacy;

5. As a function of maintaining the Data Base's integrity, it will be the responsibility of the Data Base Administrator to insure that appropriate procedures are documented within the guidelines specified by the University Procedures Committee; and

6. Insure that state-of-the-art data management practices are employed to the extent University physical, fiscal, and human resources permit.

Because data from various University offices and areas is likely to become a part of any data base, the scope of the administrator's responsibility is determined primarily by that of the vice president to whom the administrator reports rather than by the specific office in which he or she is housed.

The Data Base Administrator will, by position definition, be the Chairperson of the Systems Advisory Committee assigned the responsibility for input to the appropriate data area(s). The Chairperson will routinely convene this Committee on a monthly basis, be responsive to the suggestions solicited from the Committee, and advise the Executive Director of University Information Services of Committee recommendations.

ATTACHMENT G

USER MODULE CHECKLIST
TABLES

BEG DT.	END DT.	RESPON. PERSON			

INPUT FORM DESIGN

A. Identify module data elements to be maintained and determine all input forms required for the module.

B. For each input form...

1. Specify data elements to be included on the form
2. Initial design
3. Distribute initial draft for review
4. Make modifications
5. Write procedures for:
   a. completing the form
   b. processing the form
6. Distribute final draft and procedures for approval (this includes computer operations approval)
7. Art work for approved forms
8. Distribute proof for approval and usage estimates
9. Send to printer
10. Printing

TABLE DEFINITION

A. Determine tables required for module

B. For each table...

1. Determine USE/FORMAT
2. Collect/Code Table
3. Review Output/Write maintenance procedure (including forms if required)
4. Make corrections
5. Publicize table/maintenance procedures as required

ATTACHMENT G

USER MODULE CHECKLIST
TABLES

BEG DT.	END DT.	RESPON. PERSON			

PRODUCTION

A. Determine functional responsibilities

B. Establish administrative calendar

   1. Initial module build
   2. Continued maintenance

C. Establish production schedule including standard parameter options

D. Establish data entry deadlines

E. Establish standard distribution

F. Establish report filing/retention procedures

CONVERSION

A. Review conversion specifications

B. Establish conversion run schedule

C. Review conversion tests

D. Develop procedures to handle rejects

E. Develop procedure for collecting ISIS data elements which are not available on current system

F. Accept conversion specs/tests

ATTACHMENT G

USER MODULE CHECKLIST
TABLES

BEG DT.	END DT.	RESPON. PERSON			

TESTING

A. Review documentation

B. Develop testing objectives

1. TIM edit features
2. Table lookups
3. Error messages
4. System generated data
5. Output reports
   a. Fields print correctly
   b. Selection
   c. Sequence
   d. Format
   e. Computations

C. Code test transactions

D. Review tests

E. Analyze reports/processes

1. Processes
   a. Develop general overview
   b. Compare existing vs. new
2. For each report
   a. Determine USE (especially viewed as a replacement of an existing report or a new tool)
   b. Write procedure for use as appropriate
   c. Write retreival requests as appropriate

ATTACHMENT H

UNIVERSITY PROCEDURES COMMITTEE
RESPONSIBILITY MATRIX

Project No: 10.0
Project: Grade Reporting
Project Manager:

KEY:

P=Perform R=Review
C=Consult A=Approve

TASK No.	TASK DESCRIPTION	PLANNED Start	PLANNED End	RESPONSIBLE POSITION	Executive Vice President	Vice President-Academic Affairs	Controller	Dean of Student Records	SBM	SOE	Seaver	SPS	Law	Financial Aid	Admissions	Credits Committees	Legal Counsel	UIS
10.0	Grade Reporting																	
.1	Grade Reporting/Posting	6/16	7/14	Asst. Reg.			R	P	R	R	R	R	R					
.2	Grade Change	"	"	"				P	R	R	R	R	R			C		
.3	"I" Grades	"	"	"				P	R	R	R	R	R					
.4	Late Grades	"	"	"		C		P	R	R	R	R	R					
.5	Grades on other than official form	"	"	"				P										
.6	Changing a letter grade to "CR"	"	"	"		A		P	R	R	R	R	R					
.7	Scholastic Probation	"	"	Chairman, Credits Com		C		R	R	R	R	R	R	C		P		
.8	Removal from Probation	"	"	"		C		R	R	R	R	R	R			P		
.9	Academic Suspension: 1st/2nd Time	"	"	"		C		R	R	R	R	R	R			P		